

REMARKS**INTRODUCTION:**

In accordance with the foregoing, claims 1, 13, 23, 25, and 27 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1, 3-13, 15-23, 25 and 27 are pending and under consideration. Reconsideration is respectfully requested.

REJECTION UNDER 35 U.S.C. §102:

In the Office Action, at pages 2-6, numbered paragraphs 4-27, claims 1, 3-13, 15-23, 25, and 27 were rejected under 35 U.S.C. §102(e) as being anticipated by Isohata (USPN 6,288,489; hereafter, Isohata). This rejection is traversed, together with the Examiner's Response to Arguments, and reconsideration is requested.

It should be noted that the plasma display panel and the main frame are directly adhered by the adhesive tapes so that the adhesive tapes are provided on the entire surface of the main frame (the plasma display panel). The plural small holes (recesses) are arranged regularly at established intervals and entirely on the portion where said adhesive tapes contact the main frame and are fixed. By this, the formation of large air bubbles can be avoided. In other words, the present invention allows the formation of undesirable small portions (holes or recesses) in order to avoid the formation of large air bubbles because of the negative influence of the small portions is less than that of the large air bubbles.

Particularly, when the small recesses are provided, the stiffness of the main frame is not decreased, and the recesses are easily provided by press working.

For clarity, claims 1, 13, 23, 25 and 27 have been amended to recite that the plasma display panel is fixed directly to said main frame. In addition, said claims have been amended to recite "said adhesive tapes are provided on the entire surface of said main frame". This amendment is based on the following: As described on page 7, lines 30-35, the plasma display apparatus described in the embodiments of the present invention with reference to FIG. 4 to FIG. 15 has a basic constitution similar to that of the conventional plasma display apparatus described on page 1, line 5 to page 2, line 29, with reference to FIG. 1 to FIG. 3. A basis for the above amendment is, for example, recited in on page 12, lines 4-18, of the specification.

It is respectfully submitted that the court has held that an anticipating reference "must disclose every element of the challenged claim and enable one skilled in the art to make the

anticipating subject matter." PPG Industries, Inc. v. Guardian Industries Corp., 75 F.3d 1558, 1566, 37 USPQ2d 1618, 1624 (Fed. Cir. 1996).

For clarity, independent claim 1 has been amended to recite, in part: "adhesive tapes to fix said plasma display panel directly to said main frame." Independent claims 13, 23, 25 and 27 have been amended in similar fashion.

It is respectfully submitted that Isohata discloses using adhesive to attach the a uniform heat-conducting plate to the plasma display panel, wherein a tab 5 of the main frame slides into a socket of the heat-conducting plate, and the heat-conducting plate is secured to the main frame 17 with a screw 7. see, for example, claim 1 of USPN 6,288,489, which is recited below for the Examiner's convenience:

A plasma display device comprising:
a plasma display panel;
a circuit board having a driving circuit for driving the plasma display panel;
a main frame for supporting the circuit board; and
a uniform heat-conducting plate supported by said main frame and fixed to said plasma display panel, said uniform heat-conducting plate comprising a plurality of convex and concave parts, said convex parts being positioned closer to the plasma display panel than said concave parts and said concave parts holding an **adhesive affixing the uniform heat-conducting plate to the plasma display panel**. (emphasis added)

In addition, Isohata recites in the Abstract: "

A plasma display device is comprised of a plasma display panel, a circuit board having a driving circuit for driving the plasma display panel, a main frame for supporting the circuit board, and **a uniform heat-conducting plate to be fixed to the plasma display panel**. In this structure, **although the uniform heat-conducting plate is fixed to the plasma display panel by means of, for example, an adhesive, the main frame can be detached from the uniform heat-conducting plate when the plasma display panel is replaced**. As a result, various complicated structures such as a radiating fin and a rib can be formed on the main frame because consideration of the possibility of discarding the main frame along with a PDP to be replaced is no longer necessary. By forming the uniform heat-conducting plate to be a simple structure so as to reduce its manufacturing cost, and by forming the main frame to have a complicated structure to improve its thermal nature and the mechanical strength, the present invention is able to realize a plasma display device having improved thermal characteristics and mechanical strength without largely increasing the manufacturing cost. (emphasis added)

In contrast, amended independent claim 1, and similarly, amended independent claims 13, 23, 25 and 27, of the present invention recite a plasma display panel and a main frame having circuit substrates with drive circuits to drive the plasma display panel, wherein the plasma display panel and main frame are directly attached with adhesive. The present invention does not utilize a heat-conducting plate, as is recited in Isohata. Hence, it is respectfully submitted that Isohata teaches away from amended independent claims 1, 13, 23, 25 and 27 of the

present invention by utilizing a heat-conducting plate inserted between the main frame and the plasma display panel. Hence, amended independent claims 1, 13, 23, 25 and 27 are submitted not to be anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489).

With respect to paragraph 5, page 3, of the Office Action, the Examiner submits that that FIG. 4 of Isohata shows a plasma display apparatus comprising a plasma display panel (10), circuit substrates (11, 12) having drive circuits (13) to drive the plasma display panel, a main frame (17) to mount the circuit substrates, and adhesive tapes (FIGs. 5A-C, Element 1a-c) to fix the plasma display panel to the main frame, wherein the main frames comprises plural small holes (7) arranged regularly at established intervals and entirely on the portion where the adhesive tapes contact the main frame and are fixed." Applicants respectfully disagree. FIG. 4 of Isohata illustrates a heat-conducting plate 18 disposed between the main frame 17 and the plasma display panel 10, and the adhesive illustrated in FIGs 5A-C is located between the heat-conducting plate and the plasma display panel, as is recited in col. 7, lines 49-52 of Isohata: "Although a uniform layer of adhesive 1a is provided in the structure shown in FIG. 5A, the present invention makes it possible to place a **double coated adhesive tape between the plate 18a and PDP 10**" (emphasis added), in line 67 of col. 7 through line 4 of col. 8 of Isohata: "In the structure shown in FIG. 5B, the **double coated adhesive tape is periodically placed** so that the tape cost is reduced as compared with the case where the adhesive tape is placed on **the entire surface of PDP 10** as shown in FIG. 5A" (emphasis added), and in col. 8, lines 24-44:

FIG. 5C shows still another example of the uniform heat-conducting plate 18. Reference numeral 18c denotes the uniform heat-conducting plate of this example, the plate 18c which has the same effect as that of the plate 18b shown in FIG. 5A without conducting the drawing or the press working mentioned above. In this example, therefore, **spacers 3 are disposed in places corresponding to the convex parts 181 of the plate 18b, that is, between the adhesives 1c.** As a result, this example can easily realize a low cost plate because the above mentioned drawing or the press working method is no longer necessary. (emphasis added)

In this example, spacers 3 are not limited to the stripe form shown, but any form including square and lattice forms may be applicable.

In the above mentioned three examples of plate 18, **the heat generated by the PDP 10 is uniformly conducted to the respective plate 18a, 18b or 18c** so that no hot spot is formed on the plate 18. Then the heat is quickly discharged to the outside of the device through the main frame 17 which is attached to the plate 18a, 18b or 18c. (emphasis added)

Thus, it is clear that the adhesive elements of amended independent **claim 1** of the present invention **fix the plasma display panel to the main frame** and the **adhesive elements of Isohata fix the plasma control panel to the heat-conducting plate**. Hence, amended independent claim 1 of the present invention is not anticipated by Isohata.

Further, the Examiner stated in paragraph 5 that the hole 7 shown in FIG. 4 of Isohata (shown more clearly in FIG. 6B) corresponds to plural small holes arranged regularly at established intervals and entirely on the portion where the adhesive tapes contact the main frame and are fixed. However, this hole 7 is a screw hole. Therefore, a screw is inserted into the hole 7. Therefore, it does not practically operate as a hole. Further, the number of screw holes 7 cannot be large because the sockets, at which the screw holes are provided, are used to receive respective tabs 5 formed on a main frame 17.

In paragraph 6 of page 3 of the Office Action, the Examiner submits that FIG. 7A of Isohata "shows the main frame comprising plural small recesses on the portion, to which the adhesive tapes are fixed of the surface to which the adhesive tapes are fixed." Applicants respectfully disagree. As recited in col. 9, lines 19-43:

FIG. 7A is an oblique view showing the structure after **the main frame 17 has been fixed to PDP 10 through plate 18**. On the other hand, FIG. 7B shows the enlarged structure of the circled part shown in FIG. 7A. In FIG. 7B, reference numeral 31 denotes the secured part where a tab 5 is inserted into a socket 6 and fixed each other by a screw 19. **In this embodiment, the total of eleven secured parts 31 are provided on the frame structure such that four of them are on the respective corners, four are on each center of four edges and the remaining three are disposed at equal distances between the secured parts provided on each center of the short edges.** (emphasis added)

Reference numerals 32 and 33 denote ribs, 34 denotes a radiating fin and 35, 35 . . . denote through holes i.e., open interior spaces in the frame. Rib 32 is formed along the edges of main frame 17 so as to increase the strength of the main frame 17. Due to the rib 32, main frame 17 can be made as thin as possible except the rib part, thus reducing the weight of the main frame 17 without reducing its mechanical strength. Through holes 35 are formed to penetrate the main frame 17, thus further reducing the weight of the main frame 17. Ribs 33 are formed to the main frame 17 along the respective peripheries of the through holes 35 so as to compensate for the decrease in mechanical strength of the main frame 17 due to the formation of the through holes 35.

It is respectfully submitted that FIG. 7A illustrates fixing the main frame through the heating plate to the PDP using a screw. No adhesive is recited in the embodiment of FIG. 7A of Isohata. Thus, claim 3 of the present invention is not anticipated by FIG. 7A of Isohata.

In paragraph 7 of page 3 of the Office Action, the Examiner submits that FIG. 6A of Isohata "shows the plurality small recesses arranged regularly at established intervals." However, col. 8, lines 45-59 recite:

FIG. 6A is an exploded view, in an oblique direction, of the **structure for coupling the main frame and the uniform heat-conducting plate**. As mentioned above, the uniform heat-conducting plate 18 may be discarded with PDP 10, and therefore, it cannot have a complicated structure which may increase the cost. However, the embodiment shown in FIG. 4 forms the "complicated structure" on the main frame 17, which support the relatively low cost plate 18, so as to realize the above mentioned various functions. The main frame 17 of this embodiment has a plurality of tabs 5 (for example, 11, in FIG.

6) which combines main frame 17 with the plate 18. On the other hand, a plurality of sockets 6 are formed on the plate 18 so as to receive the respective tabs 5 formed on the main frame 17. There is also provided **a screw hole 7 in each of the tabs 5 and sockets 6.**

It is respectfully submitted that claim 4 of the present invention incorporates the features of claim 1, from which it depends, so that claim 4 of the present invention has plural small recesses that are arranged regularly at established intervals, wherein **the plural small recesses are entirely on the portion of the main frame where said adhesive tapes contact the main frame** and are fixed. In contrast, FIG. 6A of Isohata illustrates screw holes in tabs of the main frame that are to be lined up with screw holes in the sockets of the heat-conducting plate so that a screw may be used to fasten the main frame to the heat-conducting plate. As noted above, Isohata uses adhesive to connect the heat-conducting plate to the PDP, not to connect the main frame to the PDP, as is disclosed in the present claimed invention. Hence, claim 4 of the present invention is not anticipated by Isohata.

In paragraph 8 of page 3 of the Office Action, the Examiner submits that FIG. 6A of Isohata shows the plural small recesses, provided on the surface opposite to one to which the adhesive tapes are fixed, arranged regularly at established intervals. Claim 5 of the present invention incorporates the features of claim 1, from which it depends, so that claim 5 of the present invention has plural small recesses provided on the surface opposite to the one to which said adhesive tapes are fixed, wherein **the plural small recesses are entirely on the portion of the main frame where said adhesive tapes contact the main frame** and are fixed. In contrast, FIG. 6A of Isohata illustrates screw holes in tabs of the main frame that are to be lined up with screw holes in the sockets of the heat-conducting plate so that a screw may be used to fasten the main frame to the heat-conducting plate. As noted above, Isohata uses adhesive to connect the heat-conducting plate to the PDP, not to connect the main frame to the PDP, as is disclosed in the present claimed invention. Hence, claim 5 of the present invention is not anticipated by Isohata.

In paragraph 9 of page 3 of the Office Action, the Examiner submits that FIG. 6A of Isohata shows plural small recesses, provided on the surface opposite to one to which the adhesive tapes are fixed, arranged regularly at established intervals. Claim 6 of the present invention incorporates the features of claim 1, from which it depends, so that claim 6 of the present invention has plural small recesses, provided on the surface opposite to one to which said adhesive tapes are fixed, are arranged regularly at established intervals, wherein **the plural small recesses are entirely on the portion of the main frame where said adhesive tapes contact the main frame** and are fixed. In contrast, FIG. 6A of Isohata illustrates screw holes in tabs of the main frame that are to be lined up with screw holes in the sockets of the heat-conducting plate so that a screw may be used to fasten the main frame to the heat-conducting

plate. As noted above, Isohata uses adhesive to connect the heat-conducting plate to the PDP, not to connect the main frame to the PDP, as is disclosed in the present claimed invention. Hence, claim 6 of the present invention is not anticipated by Isohata.

In paragraphs 10-15 and 17-24 of the Office Action, the Examiner submits that claims 7-12 and 15-22 are anticipated by Isohata. As noted above, amended independent claims 1, 13, 23, 25, and 27 are submitted not to be anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489). Since claims 7-12 and 15-22 depend from amended claims 1 and 13, respectively, claims 7-12 and 15-22 are not anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489) for at least the reasons amended claims 1 and 13 are not anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489).

COMMENTS RE EXAMINER'S RESPONSE TO ARGUMENTS:

In the Office Action, at page 6, numbered paragraph 29, the Examiner submits that the adhesive tapes contact the main frame by way of plate (18).

Although the Examiner points to FIG. 3 of Isohata as an example of showing adhesive tapes directly contacting the main frame, it is respectfully pointed out that FIG. 3 is prior art (see label on FIG. 3) which, as recited in col. 4, lines 1-55 recites:

FIG. 3 is a cross-sectional view showing an example of a structure to improve the uniform heat-conduction between the PDP 10 and the main frame 17a. FIG. 3 is an enlarged view of the circled part shown in FIG. 2. The frame 17a is affixed to PDP 10 by means of strips of adhesive 1 made of, for example, double coated adhesive tape. The strips of adhesive 1 are arranged at almost equal distances between the frame 17a and PDP 10. In addition, strips of heat-conductive rubber sheet 2 are disposed between strips 1. Since strips of heat-conductive rubber sheet 2 have a high thermal conductivity, they are expected to quickly absorb the heat generated by the PDP 10 and conduct it to the main frame 17a, thus realizing the uniform heat-conduction between the PDP 10 and the main frame 17a. **However, this structure does not improve the heat discharge efficiency of the main frame 17a.** (emphasis added)

Further, since PDP 10 is made of glass plates and the panel size is becoming larger, ensuring the strength of the panel is very important. As mentioned above, however, the main frame 17a has been made from a thin metal plate since it cannot be made to have a complicated and high cost structure. Accordingly, a sufficient mechanical strength of a plasma display device could not be obtained when circuit boards 11 and 12 were simply installed to frame 17a.

Accordingly, the conventional plasma display device usually obtains its mechanical strength from an external framework member to which the plasma display device is installed. Various external framework members are used, depending on the types of apparatuses in which the plasma display device is installed. When the plasma display device is conveyed, **it is fastened to a protection member. In such cases, frame 17a and the external framework member are engaged together with, for example, screws via circuit boards 11 and 12 and covers 14 and 15.** (emphasis added)

However, in the structure mentioned above, since many through holes for the screws cannot be provided on the circuit boards, **the conventional plasma display device has a few engaging portions. As a result, the PDP of the conventional plasma display device may easily warp or twist** due to an unbalanced load distribution caused by the engaging portions when the device receives an impact from the outside of the device. Therefore, **the lack of stiffness has been a serious problem in the conventional plasma display device.** (emphasis added)

To correct for the lack of stiffness, for example, the main frame 17a is made thick. However, if frame 17a is thickened, it is difficult to maintain the flatness of the main frame 17a. When the main frame 17a is made thin, PDP 10 does not receive a large load even though the flatness of the main frame 17a is low, that is, little warp exists. This does not result in a serious problem. On the contrary, when the main frame is made thick and the panel 10 is affixed to the warped frame 17a, it receives a large load. **This results in breakage of the panel.** (emphasis added)

Thus, the example shown in FIG. 3 of Isohata is not an embodiment in accordance with the plasma display of Isohata or with the present claimed invention, and further, is submitted by Isohata to be an undesirable embodiment.

Thus, Isohata does not recite or suggest that fixing the plasma display panel directly to the main frame is a desirable embodiment. In contrast, Isohata submits that fixing the plasma display panel directly to the main frame is a desirable embodiment, hence teaching away from the present claimed invention.

For clarity, applicants have amended independent claims 1, 13, 23, 25 and 27 to recite, e.g., as in amended claim 1: "...adhesive tapes to fix said plasma display panel directly to said main frame." Hence, it is clear that the embodiments of Isohata do not show a plasma display apparatus comprising a plasma display panel, circuit substrates having drive circuits to drive said plasma display panel, a main frame to mount said circuit substrates, and adhesive tapes to fix said plasma display panel directly to said main frame, wherein said main frame comprises plural small holes arranged regularly at established intervals and entirely on the portion where said adhesive tapes contact the main frame and are fixed, as is recited, for example, in amended claim 1 of the present invention. Thus, amended independent claims 1, 13, 23, 25 and 27 are submitted not to be anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489). Since claims 3-12 and 15-22 depend from amended claims 1 and 13, respectively, claims 3-12 and 15-22 are not anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489) for at least the reasons amended claims 1 and 13 are not anticipated under 35 U.S.C. §102(e) by Isohata (USPN 6,288,489).

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all

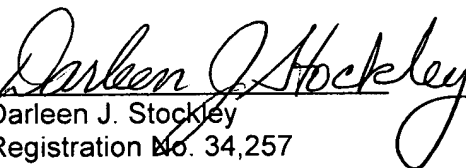
pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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